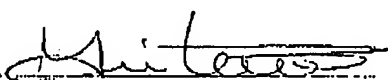


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<b>CERTIFICATE OF TRANSMISSION BY FACSIMILE (37 CFR 1.8)</b>			Docket No. <b>121800/GEM-0007</b>
Applicant(s): <b>Kishore C. Acharya, et al.</b>			
Application No. <b>10/063,840</b>	Filing Date <b>5-17-2007</b>	Examiner <b>Roy Baisakhi</b>	Group Art Unit <b>3737</b>
Invention: <b>A METHOD AND SYSTEM FOR ASSOCIATING AN EKG WAVEFORM WITH A CT IMAGE</b>			
<p>I hereby certify that this <u>Reply Brief (6 pgs.)</u>  <small>(Identify type of correspondence)</small></p> <p>is being facsimile transmitted to the United States Patent and Trademark Office (Fax. No. <u>571-273-8300</u>)</p> <p>on <u>September 24, 2007</u>  <small>(Date)</small></p> <p style="text-align: right;"><u>Tammie Lanthier</u>  <small>(Typed or Printed Name of Person Signing Certificate)</small></p> <p style="text-align: center;">  <small>(Signature)</small></p>			
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Appln. No.: 10/063,840 : Confirmation No.: 7974  
Appellants: Kishore C. Acharya et al. : Group Art Unit: 3737  
Filed: May 17, 2002 : Examiner: Roy, Baisakhi  
Docket No.: 121800/GEM-0007 :

For: A METHOD AND SYSTEM FOR ASSOCIATING AN EKG WAVEFORM WITH A  
CT IMAGE

September 24, 2007

Board of Patent Appeals and Interferences  
United States Patent and Trademark Office  
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**REPLY BRIEF**

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This Reply Brief is in response to the Examiner's Answer dated July 24, 2007.

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**With Regard To Examiner's Answer: (9) Grounds of Rejection and (10) Response to Argument**

The Examiner has responded to Appellant's Brief filed January 10, 2006, and Appellant's first Reply Brief filed June 29, 2006, by alleging that Heuscher et al anticipates the limitation of "*communicating* an exposure marker-in-signal *to* said electrocardiogram device such that said exposure marker-in-signal is associated with the EKG waveform data", emphasis added, by alleging that since the CT image acquisition is gated by EKG, anticipation of the limitation is inherent. Examiner's Answer, page 4.

The Examiner has further responded to Appellant by alleging that the Heuscher et al device *inherently* discloses "an exposure marker-in-signal 228 being a CT event signal generated by CT imaging system 4 that is communicated to EKG monitoring device 2 via EKG sync marker input 8 so as to overlay EKG waveform data 200 and indicate the start of a CT scan", and looks to Heuscher at col. 5, line 61 through col. 6, line 9, in support thereof. Examiner's Answer, page 4.

Appellant respectfully disagrees with the Examiner for the following reasons.

**I. The flow of communication alleged to be present in the Heuscher EKG-gated CT image acquisition is opposite to the flow of communication in the claimed invention.**

In the claimed invention, Appellant specifically claims "communicating an exposure marker-in signal *to* said electrocardiogram device such that said exposure marker-in signal is associated with the EKG waveform data" (claim 1), and "wherein said exposure marker-in signal is *responsive to* said computed tomography imaging system" (claim 10).

Here, Appellant is claiming something other than a gating signal, since the exposure marker-in signal is originating from the CT imaging system and being directed to the EKG device, rather than originating from the EKG device and being used to trigger the CT imaging system.

In alleging anticipation, the Examiner states that Heuscher inherently discloses the claimed invention since Heuscher's scanning includes a specific protocol where *the control of the CT scan* uses a look up table to assess patient characteristics, referencing Heuscher at col. 5, line 61 through col. 6, line 9 (emphasis added).

In further alleging anticipation, the Examiner states that Heuscher "clearly anticipates"

the limitation of communication to the EKG monitoring device since the Heuscher CT control monitors the EKG data, i.e. communicates with EKG to obtain the phase information of the patient *to control the CT scanning*, referencing Heuscher at col. 5, lines 54-60 (emphasis added).

First, Appellant respectfully points out that the Examiner's argument appears to be based on *the control of the CT scan*, which involves a flow of communication to the CT scanner, and which is contrary to the flow of communication in the claimed invention (communicating an exposure marker-in signal *to* said electrocardiogram device, wherein said exposure marker-in signal is *responsive to* said computed tomography imaging system).

Second, Appellant respectfully submits that Heuscher at col. 5, line 61 through col. 6, line 9, is directed to the operation of the CT scanner being responsive to measured patient characteristics and scanner characteristics, and is absent any disclosure of an exposure marker-in signal being responsive to the CT imaging system and being communicated to the EKG device.

Third, Appellant respectfully submits that Heuscher at col. 5, lines 54-60, is directed to operation of the EKG monitor, mentions nothing about controlling the CT scanner, and even if it did mention control of the CT scanner, such control would involve a flow of communication opposite to that of the claimed invention (to the CT scanner and not from the CT scanner to the EKG device).

As such, Appellant respectfully submits that the Examiner's arguments fail because the flow of communication alleged to be present in the Heuscher EKG-gated CT image acquisition is opposite to the flow of communication in the claimed invention.

**II. Anticipation by inherency fails because Heuscher does not necessarily include the claim limitations.**

At col. 1, lines 37-40, Heuscher discloses a problem with providing a generalized scheme for cardiac reconstruction.

At col. 1, lines 65-67, Heuscher discloses an interest in providing an improved cardiac gated spiral CT imaging apparatus to overcome certain drawbacks of the prior art involving cardiac image reconstruction.

At col. 2, line 62 through col. 3, line 8, Heuscher discloses a method for cardiac gated spiral CT imaging that includes the use of EKG data to correlate phases of the patient's heart with x-ray data collected via the spiral CT scan.

At col. 5, line 54 through col. 6, line 9, Heuscher discloses use of EKG data to accurately correlate phases of a patient's heart with data collected from radiation detectors, and operation of the acquisition system using a patient specific protocol in response to measured patient characteristics and scanner characteristics.

Throughout Heuscher, Appellant finds absent any specific discussion of an exposure marker-in signal being generated in response to the CT scanner and being communicated to the EKG device. Thus, Appellant contends that such an exposure marker-in signal is not necessary for Heuscher to perform as disclosed.

Absent the necessity of the claimed feature being present in Heuscher, anticipation by inherency must fail.

**III. The claimed exposure marker-in signal is more than "merely a triggering event" and does provide an advantage of Heuscher.**

The Examiner alleges that the claimed invention is directed to a "so-called" exposure marker-in signal, "which is merely [a] triggering event", and that such a signal is necessary in order for the images and the EKG data to be correlated, otherwise the imaging system's reconstruction is blind to the cardiac phase. The Examiner further alleges that the claimed invention does not provide any advantage or improvement over Heuscher. Examiner's Answer, pages 6 and 7.

Here, the Examiner refers to the exposure marker-in signal as being merely a triggering event.

Appellant respectfully disagrees.

By referring to the exposure marker-in signal as being merely a triggering event, it appears to Appellant that the Examiner has totally disregarded the R marker-in signal 226 discussed in paragraphs [0023-0025] of the application as filed (see also claims 6 and 17), which also discusses the exposure marker-in signal 228 and the operation of the CT imaging system 4. At paragraph [0023], Appellant discusses the R marker-in signal 226, followed by operation of the CT imaging system 4 (paragraph [0024]), followed by generation of the exposure marker-in signal 228 (paragraph [0025]). Additionally, paragraphs [0027-0028] discuss the operation of the CT imaging system 4 following the generation of an R marker-in signal 226.

Here, Appellant describes a CT imaging system 4 that is triggered following the

generation of an R marker-in signal 226, and not following the generation of an exposure marker-in signal 228. Thus, by stating that the exposure marker-in signal 228 is "merely a triggering event", Appellant respectfully contends that the Examiner has completely mischaracterized the claimed invention.

Furthermore, at paragraph [0004] of the application as filed, Appellant discusses an advantage of the claimed invention over the prior art to be accurate correlation between the EKG data and the CT projection data. At paragraph [0026], Appellant discusses the use of both the R marker-in signal 226 and the exposure marker-in signal 228, overlayed on the EKG waveform data 200, to provide improved association of the CT image data with the EKG waveform data. Nowhere in Heuscher does Appellant find any disclosure of both an R marker-in signal and an exposure marker-in signal being used for accurate correlation between the EKG data and the CT projection data. Claims 6 and 17 introduce the R marker-in signal, which is a limitation separate from the exposure marker-in signal.

As such, Appellant respectfully submits that the claimed exposure marker-in signal is more than "merely a triggering event" and does provide an advantage of Heuscher.

### **Conclusion**

For all of the foregoing reasons, in combination with all of the reasons set forth in Appellant's Appeal Brief filed January 10, 2006, and Appellant's first Reply Brief filed June 29, 2006, the arguments of which being herein incorporated by reference in their entirety, Appellant respectfully submits that Heuscher does not disclose all of the claimed elements arranged as in the claim, and absent anticipatory disclosure in Heuscher of each and every element of the claimed invention arranged as in the claim, Heuscher cannot be anticipatory.

Additionally, where the Examiner relies upon an inherency argument, Appellant respectfully submits that the Examiner has not shown with absolute specificity that the claimed limitation is a necessary feature or result of Heuscher.

Furthermore, Appellant respectfully submits that each and every element of the claimed invention must be considered as presented, and cannot be recharacterized in a manner that is contrary to the explicit description provided by the specification as filed.

In view of the foregoing, Appellant submits that the Examiner's rejection of Claims 1-30 is improper, and respectfully submits that this application is in condition for allowance and requests reversal of the outstanding rejections and early allowance of this application. If there are any additional charges with respect to this Appeal or otherwise, please charge them to Deposit Account No. 07-0845 maintained by Appellant's attorneys.

Respectfully submitted,

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